

气味的视觉语言

TOWARDS A VISUAL VOICE FOR SMELLS

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1. “坎特伯雷气味的两种呈现方式”之蒸馏 (2014年)

1. Distilling “Two Canterbury Smells,” 2014.

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摘要

气味是一种奇怪的存在。作为气流中飘荡的“搭便车者”，它们不受场地所限；但人类嗅觉的微妙感知却通常与场地密切相关。

我的研究工作将气味视为实体，并试图推测它们移动的模式和相互间的作用。西方世界并未给予气味足够的关注，因此，本研究期望探寻一种策略，使得人们无论身处本地还是外来城市的“气味景观”之中，都可以分享和探索日常的气味，进而意识到理解气味的重要意义。

通过当地居民的嗅觉体验以及地图绘制的方式，本文对全球诸多城市进行了探索，同时就我从事这项研究的初衷进行了讲述。

作为一名平面设计师，我将整个设计过程视为一种研究方法——每一件新的作品都是对前一作品的延续。

气味景观地图利用“隐含信息”作为沟通设计的方式，即将看起来“已知的”信息转变为“未知的”，以促进围绕“将气味以地图的形式重现可能性”议题的讨论，并鼓励基于现场体验的感知式学习：嗅即是学。

关键词

气味景观制图；感官知识；嗅觉呈现；隐含信息

ABSTRACT

Smells are whimsical creatures. As errant hitchhikers of rides on air currents, they appear to defy being tied to a location, yet our nuanced perception of olfactory knowledge is often linked with place.

My work considers smells as entities and speculates on their patterns of movement and their interactions. Smell is under-represented in the Western world. In order to raise awareness about the value of understanding “smell,” my research seeks strategies by which we can share and explore the everyday odours within both local and exotic urban smellscapes.

This article traces the exploration of global cities through the noses of local inhabitants, and uses map-making as a means of communication; whilst also exploring my personal motivation for undertaking this research.

As a graphic designer, I utilise the design process as a methodology; each new piece of work is an iteration on a previous piece.

Smellscape maps use “ex-formation” as a communication design method to render the seemingly “known” as “unknown” so as to encourage discussion and dispute over the possibility of mapping smells and to encourage experiential learning in situ through personal experience. To sniff is to know.

KEY WORDS

Smellscape Mapping; Sensory Knowledge; Olfactory Representation; Ex-formation

译 刘烨 陆小璇

TRANSLATED BY Ye LIU Xiaoxuan LU

“我赞颂所有的气味，赞颂清香、芳香、醇香，无论短暂还是持久、温和还是浓烈；赞颂香水之味、花草之味、美酒佳肴之味；甚至在某时某地，还会赞颂烟熏之味、潮霉之味，甚或那腐烂的臭气。”^[1]

人们可能会对气味褒贬不一。与丹·麦肯齐在如上诗文中所自述的对一切气味倾心包容的态度有所不同，如今，一提到城市中的气味，我们通常忽视其积极的一面，转而注意汽车柴油机喷出的尾气、城市制造基地的工业烟羽以及快餐店排气扇喷出的油烟。对城市气味景观展开的研究通常关注“大气味”，即那些或浓重、或持久、或有害的气味。“大气味”成为了人们对气味景观讨论的主流议题，同时削弱我们感知淡薄味道的能力^[2]，使“过度”和“侵害”成为了人们关注的两大嗅觉问题。

通过使用无孔建筑材料、对诸如机动车尾气等主要刺激性气味的遮罩效应，以及对人造芳香产品的大规模推广^[3]，人们试图将恶臭气味的源头与城市隔离，然而所有的这些都显示着我们正在创造均匀分布的“乏味景观”^[4]，并使构成“其他事物丰富而不易察觉

的背景”^[5]的特定气味逐渐消失。

人类可以在平均每天24 000次的呼吸过程中辨别超过1万亿种不同的气味^[6]，我们需要活到114 155岁才能嗅完每一种味道。那么，如何才能探索和分享可被人类感知的气味景观中潜在的极度丰富性？从何入手才能了解调查报告中避而不提的日常“小气味”？作为一名气味景观制图者，我期望能够促进人们对当地多样的日常气味的嗅觉感知。我的设计方案利用记数系统和记录装置来报告和推测与特定地点相关联的气味，同时研究它们的交汇点、存在或空无、轨迹或样式、消失或浮现。我努力呈现气味的视觉语言，以构建一个由大众采集的可被传达的数据集，并致力于引导人们将气味视为一种有效的认知方式（图1）。

与特定地点相关联的气味体验

回顾我的研究历程，如下是一系列激发我对气味的兴趣的嗅觉存在：

· 早在青少年时期，我随家人驱车前往法国南部旅行，当我把头探出车窗外，迎面而来的由热浪、柏油路、松木树脂和海水咸



味混合而成的气味告诉我，海滩就在前方；
· 在三十几岁时的一个仲冬，我踏进波士顿的一家药店，寒冷街道的清凛之气与典型美国药店气味所形成的鲜明对比令我印象深刻；
· 四十岁的时候，在抵达阿根廷首都布宜诺斯艾利斯的第一天，当我踏出木制的列车车厢时，感受到的是由多种并存的气味所形成的令人难以辨别的嗅觉冲击；
· 年过四十，当抵达爱丁堡并被其建筑的视觉冲击力所征服的同时，我开始好奇地寻求其他感知方式以认识这座拥有独特感官特征的城市。

我很想知道，当我们以嗅觉代替视觉，将之作为认知世界的重要方式时，将会发生什么？与此同时，长期以来，我痴迷于地图的多面特征——它们阐述观点的能力、构建想象中的景观的能力、辅助探索的能力、被应用的能力、所具有的观点论述的能力，以及以不同视角展开叙述的能力。这两方面的兴趣促使我尝试以地图的形式来呈现气味难以捉摸的、转瞬即逝的、活跃多变的现象。但如何协调为人所熟知的地图的固定性与看似不可绘制的如同“非连续性的空间碎片和

时间片段”^[4]的气味景观之间的关系成为了一大挑战。

我的气味感知传达研究主要是在一种名为“隐含信息”^[7]的设计方法的指导下进行。这种方法利用蕴含信息的事物，带领我们去认识那些不为我们所知的存在。简而言之，去信息提倡用新的眼光看待事物，因为未知的事物总是更能够触动人们的心弦^[7]。通过绘制气味地图，我期望鼓励人们重新发现自己所生活的城市——通过展开被我称为“嗅闻踏览”^[8]的活动（图2），人们可描述其穿行城市时体验到的气味，从而将这些城市自身的“隐性知识”可视化，通过“众包”模式完成气味感知地图的绘制。

作为实践的气味景观制图

2010年在英国爱丁堡艺术学院学习平面设计期间，我简要展示了我的研究方向和成果。在之前绘制的爱丁堡邻域肌理作品的基础上，我一时心血来潮，将关注点从设计中的触觉转到嗅觉，研究并制作了14种巴黎的气味。我把这些香味作为一个虚拟的推究交互装置予以展示，称其为“巴黎的香气和味

2. 分别在阿姆斯特丹（2013年）、爱丁堡（2015年）和新加坡（2015年）开展的嗅闻踏览活动。

2. Smellwalking in Amsterdam (2013), Edinburgh (2015), and Singapore (2015).

道”，并辅以14张说明性卡片（图3，4）。作为一个表述性地图装置，这个可供人们感受强烈嗅觉体验的作品以一种意味深长、激发共鸣的方式，展现了存在于人类和气味之间的紧密的时空联系。

作为上述巴黎作品的后续项目，我开始以本地居民的鼻子为感知途径，来记录爱丁堡的气味景观。除了向人们提供气味体验外，我还采用了可视化。如图5所示，这幅名为《徐徐微风中“老烟城”气味（2011）》的地图表明我对于气味景观制图领域普遍存在的时间问题早有察觉，其图例展示了根据布莱恩·哈利^[9]于1989年提出的“选择、省略和标记”制图步骤所选出的需要标示的内容。“格拉斯哥气味地图”（图6）用以与爱丁堡进行对比。当采用类似的现象学方法进行研究时，这两个相距97km的城市是会显示出一种共通的苏格兰城市气味景观，还是会展现两组截然不同的嗅觉构成？由此得到的绘图对比了两者所隐含的景观，向我们展示了无法“看到”的事物。格拉斯哥的图例清楚地表明，这座城市和爱丁堡有着截然不同的嗅觉特征。

随着兴趣的愈发浓厚，我的实践也愈来愈多。在美国罗德岛州的新港，我再次把嗅觉踏览作为数据收集的方法，研究了通过本地人在骑行和步行过程中的嗅觉体验所呈现的气味景观。我将数据集按照美国国家海洋和大气管理局图表绘制的模式，以此向新港人与海洋气味的紧密联系致敬（图7）。在纽约，我把大都市的足迹浓缩至具有代表性的独立街区，辅以通过本地人嗅觉踏览提供的来自下东区（图8）和格林威治村（图9）的气味数据。这些地图以真实城市背景为基础，为气味的瞬时数据层提供了空间脉络；而气味则不受人为界定的表皮空间所限。

在2013年绘制“阿姆斯特丹气味地图”（图10）期间，气味景观的易变性和即逝性深深吸引了我，我决定为整个气味景观设置一个有限的生命周期，从而创造了一个移动地图。图11中的现象层完全消失，背景中只留有城市中运河的物理拓扑结构。

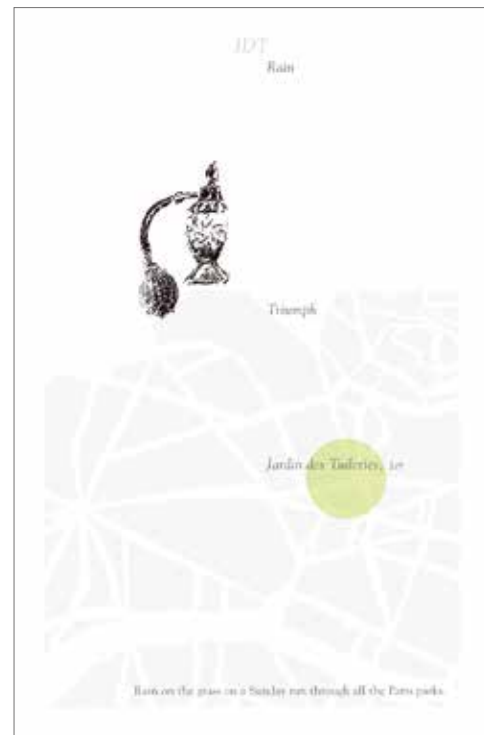
在西班牙潘普洛纳市，我进一步拓展了

这种强调瞬息即逝特征的模型，将气味视作一种集体性的短暂存在。我帮助每个气味实现其独有的“生命”，从其汇集产生，到空间中弥漫，再到挥发化为乌有。随着单个气味逐渐成为地图的主题，城市气味地图的形状也不断变化。嗅觉踏览者常常需要迅速工作，才能够将这些难以捉摸的、喜欢搭乘气流“便车”的气味的持续时间和强度特征记录到气味笔记（图12）上。

2015年6月，在新加坡独立50周年庆典活动之际，200多名实验参与者走上大街小巷，采集了成千上万份个人气味笔记。根据这些数据绘制而成的概览地图（图13）和三维物理模型，试图通过不同的气味主题，探讨在持续时间所反映的气味的瞬时性特征。由此，地图再次成为承载时间、地点、居民和气味等人文数据景观的媒介。该研究同时探究了新加坡的气味变化规律。初步研究结果表明，白天和晚上的气味景观截然不同，尤其是在涉及到气味强度的时候。

展开更为复杂的气味体验

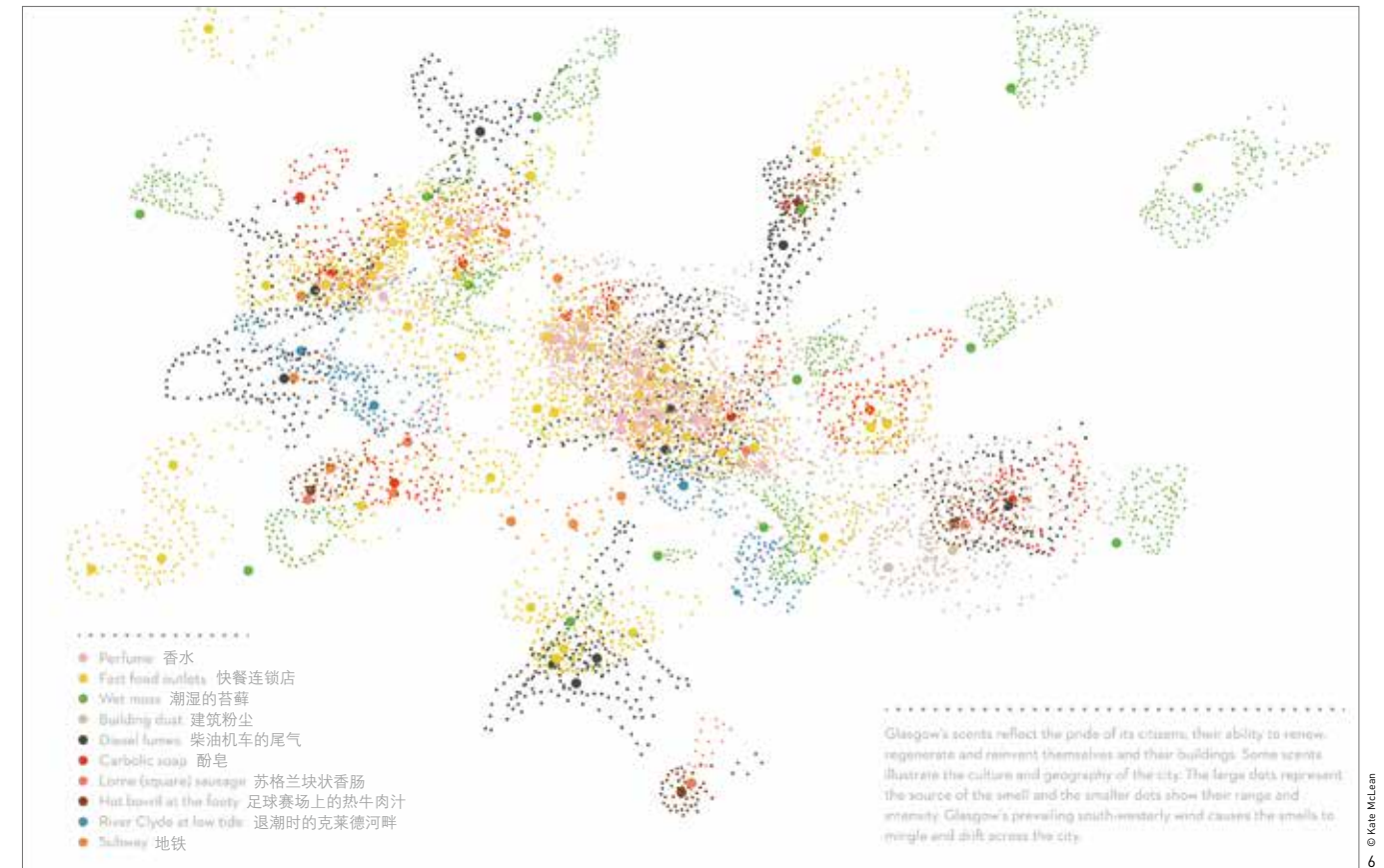
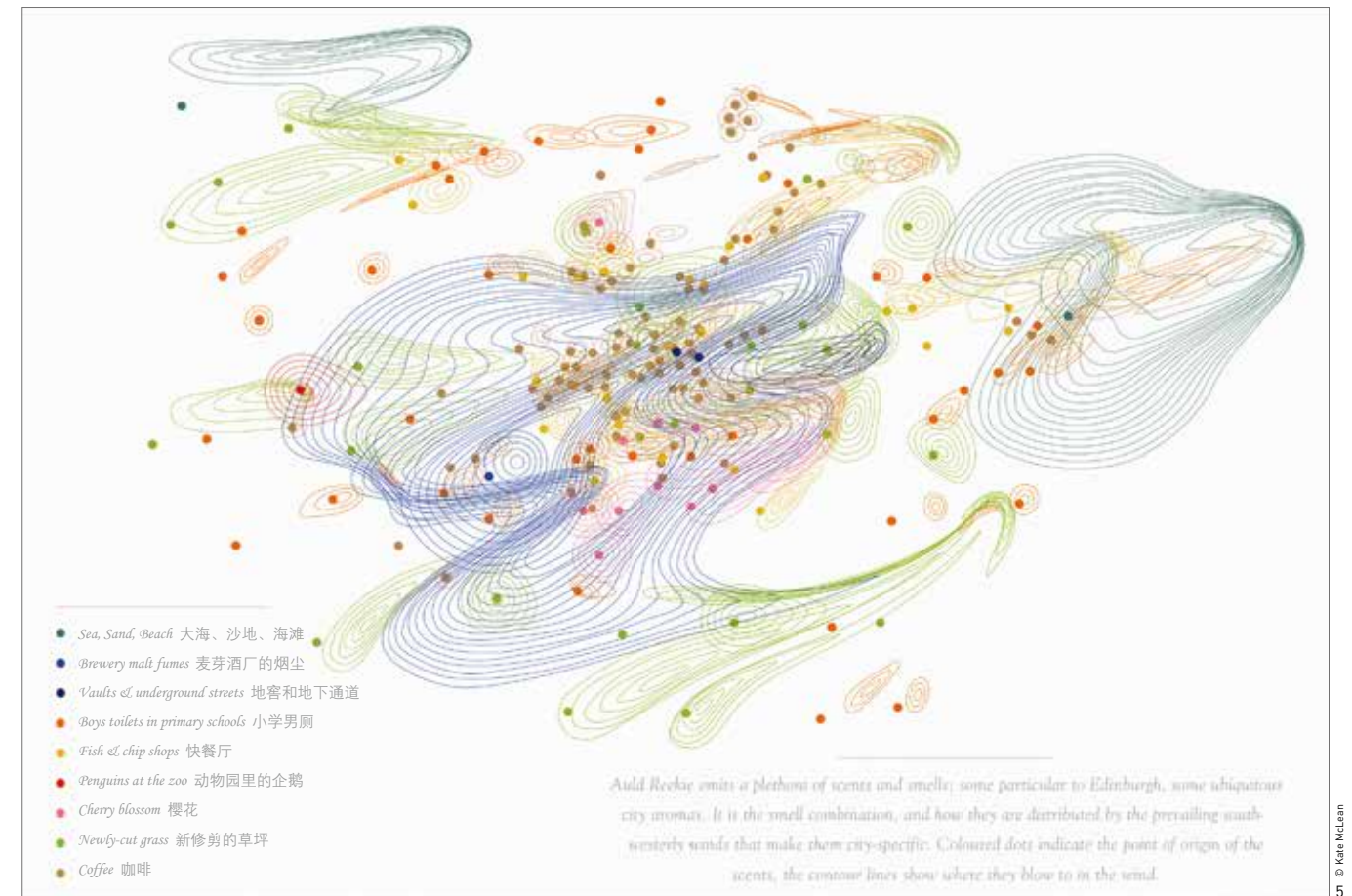
我的研究成果表明，城市的气味景观远远没有均质化；那些在城市微观层面上积极

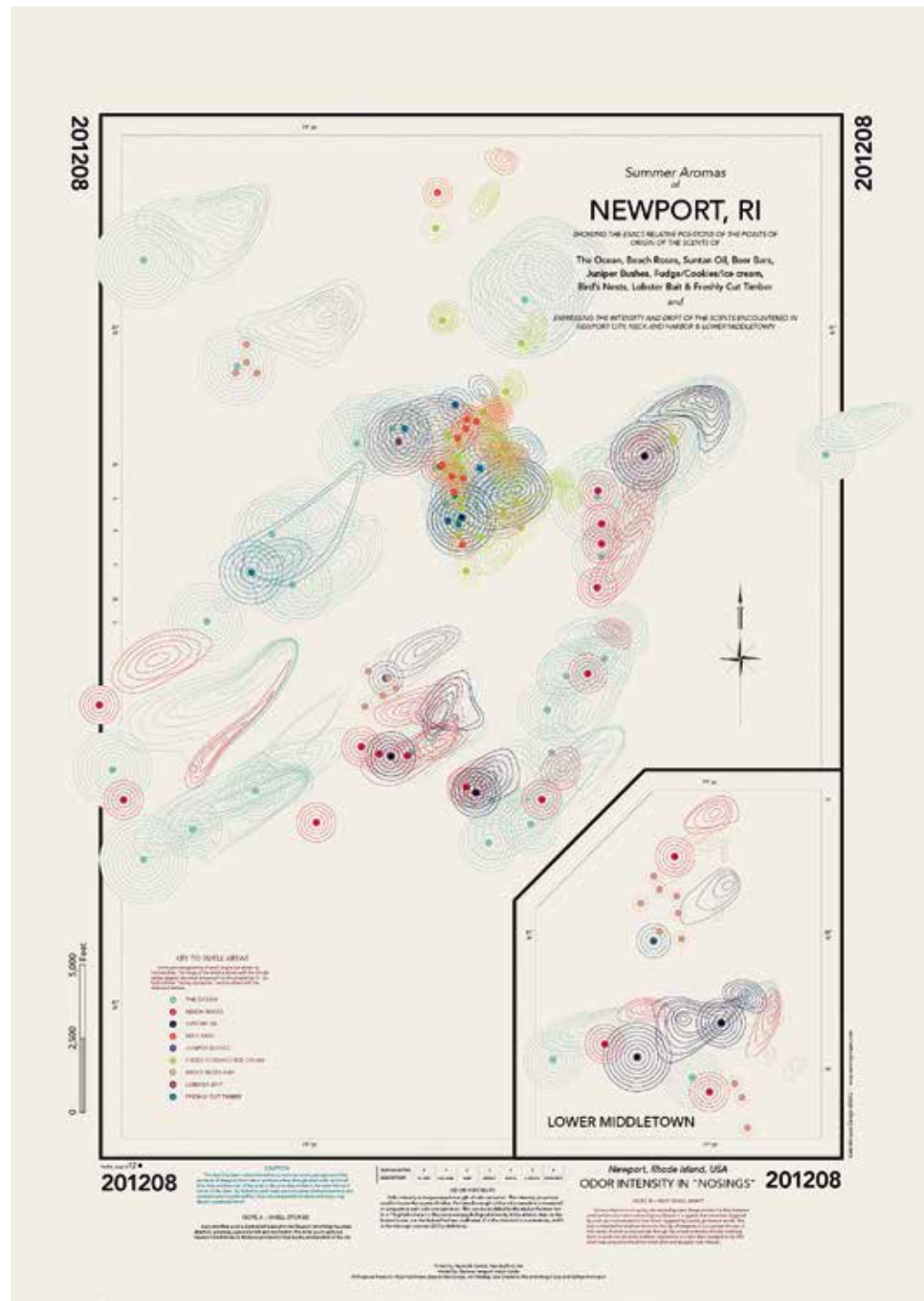


3. 在“巴黎的香气和味道”展览中，14种气味分别有一张标明灵感来源的说明性卡片，图为其中一张（2010年）。
3. Explanatory postcard for Scents and Smells of Paris indicating original inspiration for one of 14 smells, 2010.
4. 在“巴黎的香气和味道”展览中，“虚拟追寻”活动的参与者们在进行嗅觉体验（2010年）。
4. Participants on a "virtual derive" around the Scents and Smells of Paris, 2010.



5. 爱丁堡气味景观地图（2011年）
6. 格拉斯哥气味景观地图（2012年）
5. Smellscape map of Edinburgh, 2011.
6. Smellscape map of Glasgow, 2012.





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嗅闻的人们，通常能够识别出小而独特且转瞬即逝的气味，例如“水草”、“过时的东西”、“西兰花 / 深藏的秘密”、“路人的香水”、“磨碎的金属”等。我们通常认为人类的嗅觉很不灵敏；但实际上，它却超乎想象的发达^[10]——我们会在已有的个人经验与特定的气味之间创造联系，比如人们在描述气味时所用到的“考试”、“地方政府”、“破碎的梦”、“艰难的生活”等词汇都证实了这一点。

通过在世界范围内主持了100余场的嗅闻踏览活动，我意识到，为了唤起人们对嗅觉这一未被充分利用的感官的重视，需要借助特定的媒介并保持对这一领域的关注度。将地图作为“为了到达未知的目的地，而在特定区域以特定方法展开实验的工具”^[11]的设计方法，挑战了传统的制图范式，展现出新的格局。为推进气味研究的进行，我将此前在嗅闻踏览活动中所使用的“气味笔记”发展为一款在iOS系统和安卓系统都可以使用的电子应用程序。这款名为“气味景观师”（目前为测试版本）的程序可以收集、比对人类感知到的气味数据，并录入中心数据库，最终将结果呈现于一幅动态的网络地图上。这些工具可以让我们重新探索世界，揭开一个贯穿地表之内、之上以及之外的无形而奇妙的气味空间；在气味空间之中，我们可以选择嗅觉作为向导，同时为子孙后辈记录这些气味短暂的存在。

人们感知气味地图的过程分为两次：一次是在穿行其中之时，一次是在阅读地图之时。气味景观地图的视觉语言也有着双重身份，它既充当着城市气味遗产的记录机制，又是一种诱惑——它犹如善良版的海妖塞壬^①，以其之美引诱我们去发现已知世界中未知的一面——由嗅觉引领的世界。LAF

注释

请登录<http://sensorymaps.com/>，了解关于该系列项目的更多信息。

① 古希腊神话中的女海妖，以美妙歌声诱使水手驶向礁石或进入危险水域。

7. 新港气味景观地图（2012年）
8. 曼哈顿下东区气味景观地图（2011年）
9. 曼哈顿格林威治村气味景观地图（2013年）

7. Smellscape map of Newport, 2012.
8. Smellscape map of Manhattan's Lower East Side, 2011.
9. Smellscape map of Manhattan's Greenwich Village, 2013.

"I sing of smells, of scents, perfumes, odours, whiffs and niffs; of aromas, bouquets and fragrances; and also, though temperately and restrainedly I promise you, of effluvia, reeks, foetors, stenches, and stinks."^[1]

Smell can be both contentious and contested. Unlike McKenzie's self-imposed promise of a hedonic olfactory balance above, contemporary references to smells in our cities frequently ignore the positive qualities, calling attention instead to belches of diesel fumes from transport, industrial plumes from urban manufacturing sites, and fatty odours from extractor fans to the rear of fast food restaurants. Studies of urban smellscape see the "larger" smells — those that are intense or long-lasting or noxious — dominating the discourse just as powerful smells dominate our ability to perceive the lesser smells^[2]. Excess and offence are the key olfactory issues being addressed.

Through the combined effects of separating bad odour sources from cities, using non-porous architectural materials, and the masking effects of dominant smells, such as traffic emissions, and branding practices of deliberate scenting^[3], it has been suggested that we are creating homogenised "landscapes"^[4] eliminating the very odours that form the "rich unconscious background to everything else"^[5].

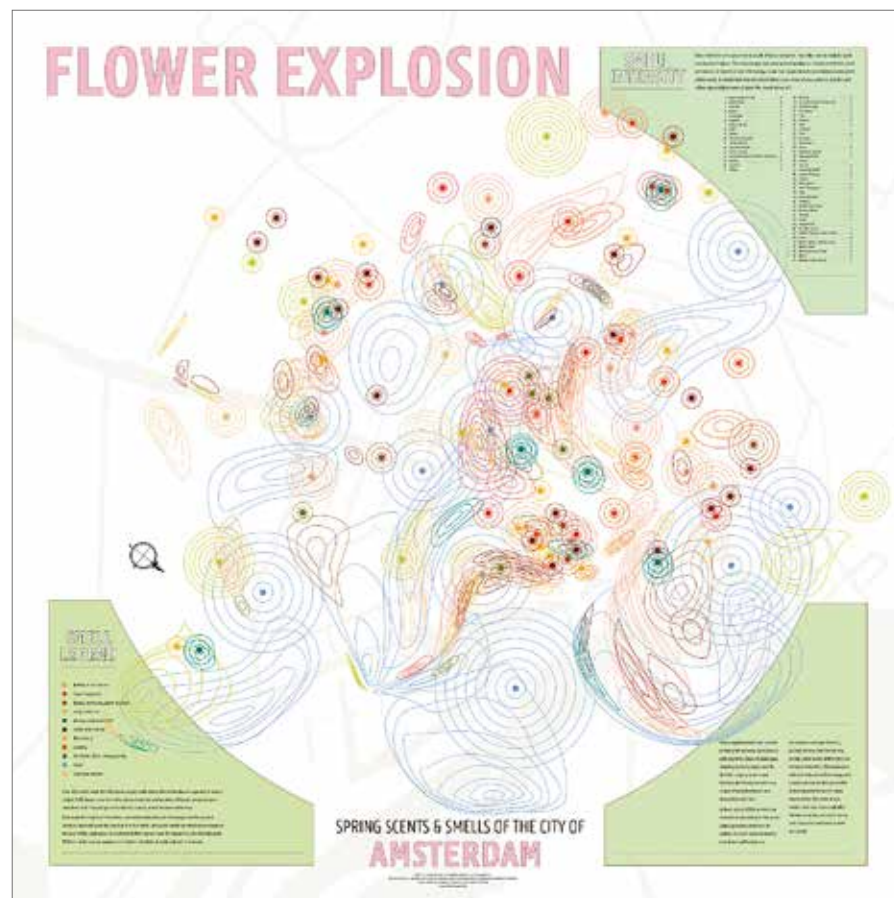
Humans can discriminate among more than a trillion different smells^[6] breathing, on average, 24,000 times per day. We can live for 114,155 years without ever repeating an exact smell experience. So how might we explore and share the extensive potential riches of the human-perceived smellscape? How can we start to know the "smaller," everyday smells that elude mention in commissioned reports? My goal, as a mapper of smellscape, is to promote an olfactory consciousness that appreciates the vernacular diversity of everyday whiffs. My design practice develops notation systems and recording mechanisms to inform



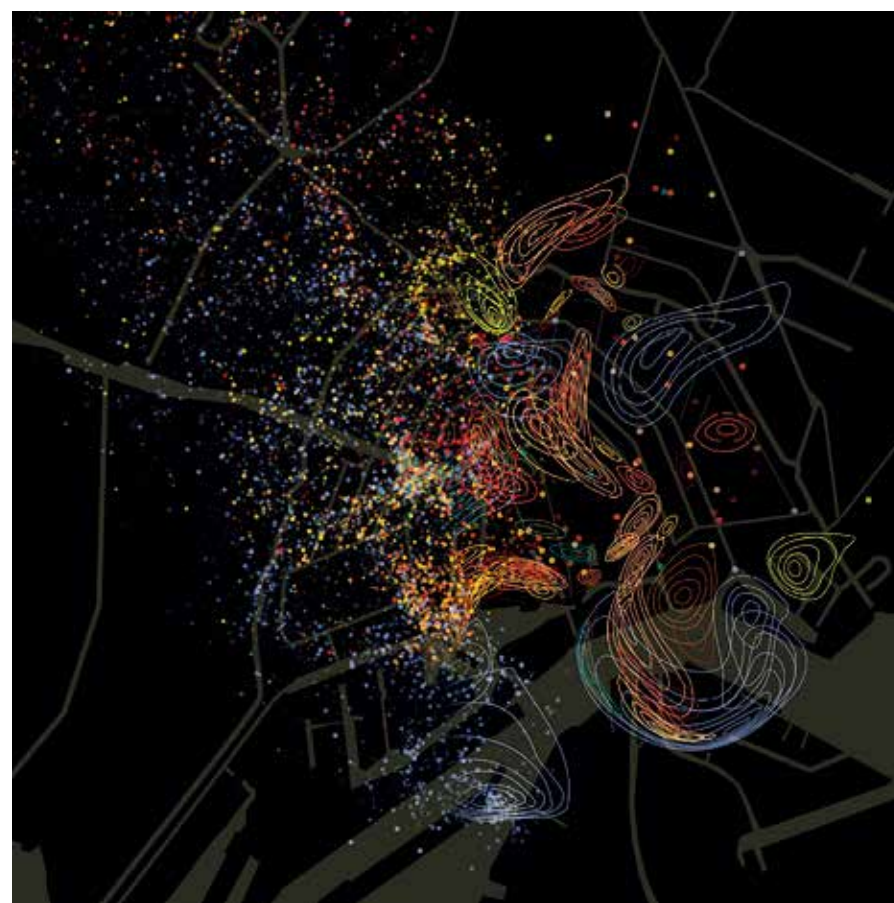
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and to speculate on geo-located smells; their crossing points, presences, voids, trajectories, appearances, disappearances, emergences. I work towards a visual voice for smells, a collectively sourced communicable dataset, and to register smell as a legitimate way of knowing (Fig. 1).

Geo-located Smell Experiences

Viewed retrospectively, I can cite a series of olfactory occurrences that led my interest:

- As a teenager, my head positioned half out of window of our family car travelling to the south of France, knowing through the amalgamated scent of heat, tarmac, pine resin and ocean saltiness that we are nearly “there;”
- In my thirties, entering a pharmacy in midwinter Boston and noticing the marked contrast between zero smell in the cold street and a distinct American pharmacy smell;
- As a forty-year old, exiting the wooden metro carriage on our first day in Buenos Aires and feeling the confused rush of multiple, simultaneous sensory stimuli;
- In my forties, arriving in Edinburgh and being overwhelmed by the visual prowess of the architecture, curious to uncover alternative sensory elements of the city with a distinct sensory presence.

I am interested in what happens when we temporarily reorient knowing away from the visual and instead foreground the olfactory sense as a means of knowing the world. Together with a life-long fascination with the multi-faceted nature of maps; their capacity to make arguments, to conjure imagined landscapes, to aid exploration, to be performed, to act as propositions and to depict narratives through altered angles of view led me to combine the elusive, ephemeral, vital phenomena of smell with the cartographic form. The challenge is to reconcile the alleged fixity of the map with a potentially un-mappable smellscape; one

SMELNOTES City:

Smell # (locate this smell on a map) 气味序号 (在图上标示气味的位 置)	Name of smell 气味名称	Smell intensity 气味强度 (weak strong) 弱 强	Smell duration 气味持续时间 (short long) 短 长	Smell like / dislike 对气味的喜爱程度 (dislike like) 不喜欢 喜欢	Expected smell? 气味是否符合预期 (yes no) 是 不是	Your associations. Your thoughts. Based on this particular smell.. 基于这种气味写下你的感想
1.	Smell Catching / Passive smelling 气味捕捉/被动嗅闻	●●●●●●	●●●●●●	●●●●●●	●	
2.		●●●●●●	●●●●●●	●●●●●●	●	
3.		●●●●●●	●●●●●●	●●●●●●	●	
4.		●●●●●●	●●●●●●	●●●●●●	●	
5.	Smell Hunting / Active smelling 气味搜寻/主动嗅闻	●●●●●●	●●●●●●	●●●●●●	●	
6.		●●●●●●	●●●●●●	●●●●●●	●	
7.		●●●●●●	●●●●●●	●●●●●●	●	
8.		●●●●●●	●●●●●●	●●●●●●	●	
9.	Free smelling (your choice of smell catching and / or smell hunting) 随意嗅闻 (由你选择捕捉或搜寻气味)	●●●●●●	●●●●●●	●●●●●●	●	
10.		●●●●●●	●●●●●●	●●●●●●	●	
11.		●●●●●●	●●●●●●	●●●●●●	●	
12.		●●●●●●	●●●●●●	●●●●●●	●	
13.	Summary smell (indicative scent of this walk) 气味汇总 (嗅觉踏览中出现的所有气味)	●●●●●●	●●●●●●	●●●●●●	●	Smell colour: 气味色彩:

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10. 阿姆斯特丹气味景观地图 (2014年)
11. 从阿姆斯特丹的运河基础设施中蒸发并挥发出来的气味 (2014年)。
12. 气味笔记
10. Smellscape map of Amsterdam, 2014.
11. Volatilizing scents evaporating from Amsterdam's canal infrastructure, 2014.
12. Smellnotes

that is “non-continuous, fragmentary in space and episodic in time^[4].”

My approach to the communication of smell is guided by a design method known as “ex-formation^[7]” that seeks to use the form and the function of information to point out what we do not know. Simply put, ex-formation advocates for seeing things in a new light because, “What moves people’s hearts, in every case, is the unknown^[7].” My smellmapping practice encourages people to rediscover their own cities through the practice of smellwalking^[8] (Fig. 2) describing the smells they encounter drawing on a tacit

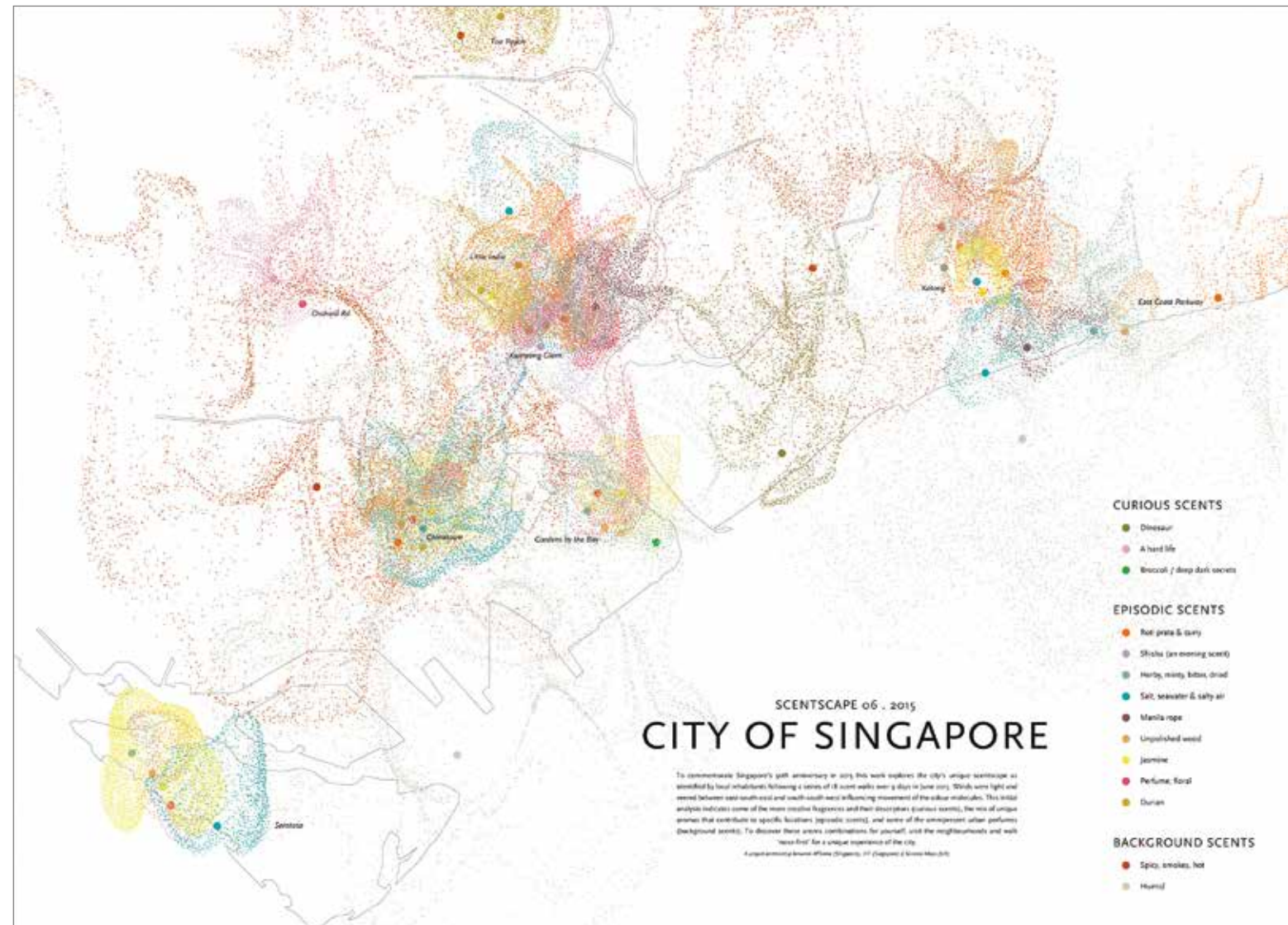
knowledge of the city to crowdsource a map of olfactory perceptions.

Smellscape Mapping as a Practice

While studying Graphic Design at Edinburgh College of Art in 2010, I undertook a brief to exhibit my research interests and findings. On the spur of the moment, following previous works mapping the city’s neighbourhood textures, I switched from tactility in design to smell; researching and making 14 Parisian smells. I exhibited the fragrances as a virtual derive interactive



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installation, called The Scents and Smells of Paris accompanied by 14 explanatory postcards (Fig. 3, 4). As a performative map installation, the work seemed thoughtful, evocative and poignant, indicating strong connections between humans and smells, moments in time, and physical locations.

As a follow-up to the Paris piece, I focussed on Edinburgh's whiffs witnessed through the noses of a cross-section of the local population. I considered visualisation in addition to creating the smells. The title *Smells of Auld Reekie on a Very Breezy Day*

in 2011 (Fig. 5) highlights an early awareness of the temporal problematic that pervades smellscape mapping. The legend indicates the results of Harley's^[9] steps of selection, omission and symbolisation in making the map. Smellmap of Glasgow (Fig. 6) was a deliberate choice for comparison with Edinburgh. Would two cities, just 60 miles apart, share a Scottish city smellscape or reveal distinctive olfactory components when explored with a similar phenomenological methodology? The resultant mapping compares invisible landscapes, showing us

13. 以一段持续的时间内感知到的气味为主题绘制的新加坡气味景观地图(2015年)。

13. The Smellscape map of Singapore thematically mapped by perceived smell duration, 2015.

① In ancient Greek stories, Siren is a sea creature, whose beautiful singing made sailors sail towards themselves into rocks or dangerous waters.

something we simply cannot see. Glasgow's legend clearly shows it has a distinct identity from Edinburgh.

As my interest grew so did my practice; in Newport, RI, USA I explored the smellscape with locals on bicycles and on foot iterating smellwalking as a data collection methodology. I mapped the dataset to an National Oceanic and Atmospheric Administration chart aesthetic, honouring Newporters' strong affiliation with the smell of the ocean (Fig. 7). In New York I reduced the footprint of the mega city to single representative blocks and individual and paired smellwalking provided smelldata for Lower East Side (Fig. 8) and Greenwich Village (Fig. 9). The maps include a physical background in the map to provide context for the layer of ephemeral data; smells resist containment and seek to escape from the surface to which they are artificially tethered.

During the 2013 mapping of Amsterdam's smells (Fig. 10), the volatile and evanescent qualities of the smellscape captivated me to the extent that I decided the entire smellscape should have a finite lifespan and so created a moving map in which the phenomenological layer disappears completely leaving a physical topology of the canals in the background (Fig. 11).

In Pamplona, Spain I pushed the evanescent model further, treating the smells as having a collective ephemeral existence and affording each smell instance a "life" of its own; one that involves coming into being, moving in space, and volatilising to nothingness. Here the cartographic shape of the city changes constantly as individual smells become the subject of the map. Smellwalkers often need to work swiftly to record the duration and intensity characteristics onto smellnotes (Fig. 12) of these whimsical hitchhikers of rides on air currents.

In June 2015 over 200 participants

walked the streets of Singapore generating thousands of individual smellnotes to commemorate the city's 50th anniversary. The summary map (Fig. 13) and a 3D data physicalisation thematically explore temporality through smell duration. Map conventions again ground the humanist datascape of time, place, people and smells. The research also explores the smell rhythms of Singapore and early indications reveal that day and night smellscape have distinct patterns, particularly with reference to smell intensity.

Towards Further Smelly Complexity

My research findings indicate that the city smellscape is far from homogenised; at a micro level actively-engaged sniffing humans pick out the smaller, individual, fleeting odours such as "wheatgrass," "dinosaur," "broccoli / deep dark secrets," "perfume on a passer-by" and "metal being ground." Whilst common perception is that we are poor sniffers, we are better than we think^[10], generating links between our personal prior experience and a specific whiff; as smells of "examinations," "local government," "shattered dreams" and "a hard life" all testify.

Through leading 100 smellwalks worldwide, I have seen how the human capacity to focus on an underused sense requires agency and concentration. Using a design methodology that regards the map as "a tool to experiment with a particular territory in specific ways in order to reach unforeseen destinations"^[11] counters traditional cartographic paradigms and in doing so reveals new patterns. To further the study, I have developed a smellnote as a digital app for both iOS and Android (currently in beta testing) called "Smellscape" to collect and collate human-perceived smelldata into centralised database displaying results

on a dynamic web basemap. These tools can enable us to re-explore the world, uncovering an invisible, magical olfactory space that exists in, on, and above the earth, where we can choose to navigate by smell experiences and simultaneously note their temporary presence for posterity.

The process of mapping smells occurs twice; once when walking and again when reading the map. The visual language of a smellscape map has a double agency too; it both acts as recording mechanism for city smell heritage and is an enticement, its aesthetics are a lure, a benevolent Siren^① into discovering our known world in an unknown way... nose-first. **LAF**

NOTE

Please visit <http://sensorymaps.com/> for more information.

REFERENCES

- McKenzie, D. (1923). *Aromatics and the Soul*. London: William Heinemann Ltd.
- Ministry of Environment & Forests. (2008). *Guidelines on Odour Pollution & Its Control*. Retrieved from http://cpcb.nic.in/divisionsofheadoffice/pci2/package_odourreport_2.12.08.pdf
- Henshaw, V. (2014). *Urban Smellscape: Understanding and Designing City Smell Environments*. New York: Routledge.
- Porteous, J. D. (1990). *Landscapes of the Mind: Worlds of Sense and Metaphor*. Toronto: University of Toronto Press.
- Sacks, O. (2015). *The Man Who Mistook His Wife for a Hat: Picador Classic*. London: Pan Macmillan.
- Bushdid, C., Magnasco, M. O., Vossball, L. B., & Keller, A. (2014). *Humans Can Discriminate More than 1 Trillion Olfactory Stimuli*. *Science*, 343(6177), 1370-1372. Retrieved from <http://doi.org/10.1126/science.1249168>
- Hara, K. (2015). *Ex-Formation*. Zurich: Lars Müller Publishers.
- McLean, K. (2016). *Smellwalk Influences & Causality | Sensory Maps*. Retrieved from <http://sensorymaps.com/portfolio/smellwalk-influences/>
- Harley, J. B. (1989). *Deconstructing the Map*. *Cartographica*, 26(2), 1-20.
- Shepherd, G. M. (2004). *The Human Sense of Smell: Are We Better Than We Think?* *PLoS Biology*, 2(5), e146. Retrieved from <http://doi.org/10.1371/journal.pbio.0020146>
- Kanarinka, F. A. (2006). *Art-Machines, Body-Ovens and Map-Recipes: Entries for a Psychogeographic Dictionary*. *Cartographic Perspectives*, 2006(53), 24-40.